

FORM PTO-1449 U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE INFORMATION DISCLOSURE STATEMENT BY APPLICANT (USE SEVERAL SHEETS IF NECESSARY)	ATTY. DOCKET NO. ASMMC.020AUS	APPLICATION NO. 09/997,396
	APPLICANT Hujanen et al.	
	FILING DATE November 28, 2001	GROUP 2818

U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE (IF APPROPRIATE)
0V	1	5,382,333	01/17/95	Ando et al.			

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EXAMINER <i>Grland</i>	DATE CONSIDERED 08/20/03
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APPLICANT  
Hujanen et al.FILING DATE  
November 28, 2001GROUP  
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## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE (IF APPROPRIATE)
DV	1	6,006,763	12/28/99	Mori et al.			

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## U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE (IF APPROPRIATE)
DV	6,342,277 B1	1/29/02	Sherman			

## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
						YES	NO

EXAMINER INITIAL	OTHER DOCUMENTS (INCLUDING AUTHOR, TITLE, DATE, PERTINENT PAGES, ETC.)	

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Hujanen et al.FILING DATE  
November 28, 2001GROUP  
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## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE (IF APPROPRIATE)
DV	1	6,143,658	11/07/00	Donnelly et al.			
DV	2	5,939,334	08/17/99	Nguyen et al.			

EXAMINER INITIAL	OTHER DOCUMENTS (INCLUDING AUTHOR, TITLE, DATE, PERTINENT PAGES, ETC.)	
DV	3	Ueno et al., "Cleaning of CHF <sub>3</sub> plasma-etched SiO <sub>2</sub> /SiN/Cu via structures using a hydrogen plasma, an oxygen plasma, and hexafluoroacetylacetone vapors," J. Vac. Sci. Technology B 16(6), pp. 2986-2995 (1998)

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EXAMINER <i>ghulond</i>	DATE CONSIDERED <i>08/23/04</i>
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PTO/SB/08 Equivalent

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (Multiple sheets used when necessary)  SHEET 1 OF 1	Application No.	09/897,398
	Filing Date	November 28, 2001
	First Named Inventor	Hujanen et al.
	Art Unit	2818
	Examiner	David Vu
	Attorney Docket No.	ASMMC.020AUS

## U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name of Patentee or Applicant	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
DV	1	6,482,740	11-19-2002	Soininen et al.	—
DV	2	6,878,828	04-12-2005	Sophie et al.	—
DV	3	2004/0038529	02-26-2004	Soininen et al.	—

## FOREIGN PATENT DOCUMENTS

Examiner Initials	Cite No.	Foreign Patent Document Country Code-Number-Kind Code Example: JP 1234567 A1	Publication Date MM-DD-YYYY	Name of Patentee or Applicant	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear	T <sup>1</sup>

## NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>1</sup>

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Examiner Signature <i>Hujanen</i>	Date Considered 08/07/05
*Examiner: initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

T<sup>1</sup> - Place a check mark in this area when an English language Translation is attached.

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## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
							YES	NO
DV	1	JP 62221102	09/29/87	Japan Patent Abstract			x	
	2	WO 02/09158 A2	07/18/01	PCT			✓	
	3	WO 02/09126 A2	07/18/01	PCT			✓	
DV	4	WO 01/88972 A1	05/15/01	PCT			✓	

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## OTHER DOCUMENTS (INCLUDING AUTHOR, TITLE, DATE, PERTINENT PAGES, ETC.)

DV	5	XP-002223616, "5 <sup>th</sup> Asian Symposium on Information Storage Technology (ASIST), Hong Kong, China, 14-16" Nov. 2000					
	6	Utriainen et al., "Studies of metallic thin film growth in an atomic layer epitaxy reactor using M(acac) <sub>2</sub> (M_Ni, Cu, Pt) precursors", Applied Surface Science, April 2000					
	7	Ritala et al., "Atomic layer epitaxy - a valuable tool for nanotechnology?" Nanotechnology 10 (1999), P 19-24					
DV	8	Oral presentation Chang-Wook Jeong (SEOUL NATIONAL UNIVERSITY CENTER FOR ADVANCED MATERIALS RES.): "Thursday, 16/11/2000: Magnetoresistance of ferromagnetic tunneljunctions with A1202 formed by Plasma-Assisted Atomic Layer Controlled Deposition" Presentation at 5 <sup>th</sup> Asian Symposium on Information Storage Technology (ASIST). November 16, 2000					

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## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE (IF APPROPRIATE)
DV	1.	4,058,430	11/15/77	Suntola et al.	158	811	11/25/75
DV	2.	5,711,811	01/27/88	Suntola et al.	118	711	11/28/85

## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
							YES	NO
DV	3.	WO 00/38191	29.08.00	PCT			✓	
DV	4.	WO 01/88972 A1	22.11.01	PCT			✓	

## OTHER DOCUMENTS (INCLUDING AUTHOR, TITLE, DATE, PERTINENT PAGES, ETC.)

EXAMINER INITIAL		
DV	5.	Addison, C. C. et al., "The Vapour Pressure of Anhydrous Copper Nitrate, and its Molecular Weight in the Vapour State," <i>J. Chem. Soc.</i> , pp. 3099-3108 (1958).
	6.	Akerman, J. J. et al., "Identifying Tunneling in Ferromagnetic-Insulator-Ferromagnetic Thin Film Structures," World-wide web, physics.ucsd.edu/ksgrp/Tunneling.html, pp. 1-8.
	7.	Bobo, J. F. et al., "Spin-dependent tunneling junctions with hard magnetic layer pinning," <i>Journal of Applied Physics</i> , Vol. 83, No. 11, pp. 6685-6687 (1998).
	8.	Daughton, J. M., World-wide web nve.com/otherbiz/mram2.pdf, "Advanced MRAM Concepts," pp. 1-6 (February 7, 2001).
	9.	Fereday, R. J. et al., "Anhydrous Cobalt (III) Nitrate," <i>Chemical Communications</i> , p. 271 (1968).
	10.	Imai, Takuji, World-wide web nikkeibp.asiabiztech.com/nea/200008/tech_108675.html, "100 Gbit/Inch HDD Just Around the Corner," pp. 1-6 (August 2000).
	11.	Nilsen, O. et al., "Thin film deposition of lanthanum manganite perovskite by the ALE process," <i>Journal of materials Chemistry</i> , Vol. 9, pp. 1781-1784 (1999).
	12.	Pakrad, C. D., "Pure Tech: Growth of MR/GMR Head Materials," World-wide web, puretechinc.com/tech_papers/tech_papers-4.htm, pp. 1-2 (1999).
	13.	Suntola, <i>Handbook of Crystal Growth</i> , Vol. 3, Thin films and epitaxy, Part B: Growth mechanisms and dynamics, Chapter 14, pp. 601-663, Hurlé, ed. Elsevier Science B.V. (1994).
	14.	Wang, Shan X., "Advanced materials for Extremely High Density Magnetic Recording Heads," Department of Materials Science and Engineering, Department of Electrical Engineering, Stanford University, Stanford, CA 94305-4045, presentation.
	15.	World-wide web megahaus.com/tech/westerndigital/shitepapers/gmr_wp.shtml, "GMR Head Technology: Increased Areal Density and Improved Performance Areal Density," pp. 1-4 (February 2000).
	16.	World-wide web semiconductor.net/semiconductor/issues/issues/1998/feb98/docs/emerging.asp, "GMR Read-Write Heads Yield Data Storage Record," pp. 1-2 (February 1998).
	17.	World-wide web stoner.lead.ac.uk/research/gmr.htm, "Giant Magnetoresistance," pp. 1-8.
DV	18.	World-wide web, pc.guide.com/ref/hdd/op/heads/techGMR-c.html, "Giant Magnetoresistive (GMR) Heads," pp. 1-4.

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EXAMINER <i>Shuland</i>	DATE CONSIDERED <i>02/20/03</i>
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